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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/648,767

08/28/2000

Alan F. Graves

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5709

28291

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10/19/2004

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EXAMINER

PAYNE, DAVID C

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/648,767

Applicant(s)

GRAVES, ALAN F.

Examiner

David C. Payne

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AC

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 44-48 is/are allowed.
- 6) ☒ Claim(s) 1-43 and 49-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. After further careful consideration and consultation, the examiner maintains the rejection of claim 21 according to 35 USC 101. Furthermore, the examiner rejections claims 1-20, 22-31, and 39-43.
2. Applicant's arguments filed 9 July 2004 have been fully considered but they are not persuasive.
3. Regarding applicant's assertion that Petsko does not disclose alteration of patterns. A plurality of test words is understood and a sequence of alternating patterns as claimed. The test word itself transmits information concerning the test.
4. Regarding applicant's assertion that test patterns as disclosed by Petsko are not characterized by average signal levels indicative of the binary value of a bit of an information stream. Examiner contends that any pattern of bits must by necessity create an average signal level since the bits contain energy. Even if the bit values are '0', they are carry an average signal level.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. The claimed invention is directed to non-statutory subject matter. Claims 1-31 and 39-43 claim either a signal embodied in a transmission medium or a method of operation on a bit stream.

A signal per se is non-statutory matter. A signal per se, whether an abstract arrangement of information or a physical manifestation of information, does not produce a “useful, concrete and tangible result” until it is coupled with physical structure. Even if the signal is transmitted in a transmission medium such as a wire or fiber optic cable, which requires movement of physical matter such as electrons, the signal is the propagating disturbance in the medium, not the medium itself. Therefore, the examiner does not agree that the subject matter fits within the category of a “composition of matter.”

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

8. Claim(s) 49, 50-52, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petsko et al. US006292516B1 (Petsko) in view of Tsuda US 5,619,507 (Tsuda).

Re claim(s) 49, 54

Petsko disclosed

A communications signal embodied in a transmission medium and for use in a communications network, comprising: recurrent wrapper bursts, each wrapper burst comprising one or more wrapper symbols (e.g., col./line: 4/1-10), each of which corresponds to an information bit;

Petsko does not disclose wherein each wrapper symbol is characterized by a signal level transition pattern, said signal level transition pattern being either a first pattern or a second pattern depending on the logic value of the respective information bit; and wherein the first and second patterns each have a distinct average signal level and are each characterized by at least one signal level transition. Tsuda disclosed that signals use unique signal levels to identify bit patterns. It would have been obvious to one of ordinary skill in the art at the time of invention that a every binary word has a distinct average signal level since the a binary symbol has bit transitions and therefore creates a dc bias based upon the time the it is off, (see Tsuda col./line: 5/60-65, 6/20-35, 6/45-55).

Re claim(s) 50-52

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In the modified invention to Petsko and Tsuda, Tsuda does not disclose wherein the first and second patterns each have at least one rising edge and at least one falling edge. However, Tsuda disclosed that synchronization is possible at the receiver. It would have been obvious to one of ordinary skill in the art at the time of invention that bit transitions need occur for synchronization to be possible at the receiver and therefore complementary to reduce dc bias.

9. Claim(s) 32-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petsko et al. US006292516B1 (Petsko) and Tsuda US 5,619,507 (Tsuda) in view of Nakamura et al. US005857092A (Nakamura).

Re claim 32, 38

Petsko disclosed,

A communications signal embodied in a transmission medium and for use in a communications network, comprising: recurrent wrapper bursts, each wrapper burst comprising one or more wrapper symbols (e.g., col./line: 4/1-10), each of which corresponds to an information bit;

Petsko does not disclose wherein each wrapper symbol is characterized by a signal level transition pattern, said signal level transition pattern being either a first pattern or a second pattern depending on the logic value of the respective information bit; and wherein the first and second patterns each have a distinct average signal level and are each characterized by at least one signal level transition. Tsuda disclosed that signals have a dc balance component

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based upon symbol transition. It would have been obvious to one of ordinary skill in the art at the time of invention that a every binary word has a distinct average signal level since the a binary symbol has bit transitions and therefore creates a dc bias based upon the time the it is off, (see Tsuda col./line: 5/60-65, 6/20-35, 6/45-55). Petsko dose not disclose the method comprising the steps of: converting the composite optical signal into an electrical signal having an electrical bandwidth that is substantially less than the bandwidth of the high-speed data stream; locating the position of each wrapper segment in the low-bandwidth electrical signal; and detecting individual bits of the overhead bit stream from the average level of the low-bandwidth electrical signal during the located wrapper segments. Nakamura disclosed optical/electrical conversion and detecting individual bits of the overhead bit stream from the average level of the low-bandwidth electrical signal during the located wrapper segments (figure 8, #153). It would have been obvious to one of ordinary skill in the art at the time of invention to apply the wrapper symbol technology to the optical domain for the benefit of high speed transport.

Re claim(s) 34, 36

Tsuda disclosed, wherein the step of detecting comprises: for each wrapper symbol interval in each located wrapper segment, measuring an average signal level of the lowbandwidth electrical signal during that wrapper symbol interval; comparing the measured average signal level to a threshold; and if the measured average signal level is above the threshold, concluding that the corresponding bit in the overhead bit stream is a logic "one" and if the

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measured average signal level is below the threshold, concluding that the corresponding bit in the overhead bit stream is a logic zero (e.g., col./line: 5/60-65, 6/20-35, 6/45-55).

Re claim(s) 35

Petsko does not disclose each wrapper symbol is characterized by at least one intermediate signal level transition.

However, Tsuda disclosed that synchronization is possible at the receiver. It would have been obvious to one of ordinary skill in the art at the time of invention that bit transitions need occur for synchronization to be possible at the receiver and therefore complementary to reduce dc bias. (see Tsuda col./line: 8/1-10).

Re claim(s) 33, 37

In the modified invention to Petsko and Tsuda, Petsko disclosed wherein the receiver has a bandwidth which is significantly less than the bit rate of the high-speed data stream. (Petsko figures 3 and 4).

10. Claim(s) 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Petsko et al.

US006292516B1 (Petsko) and Tsuda US 5,619,507 (Tsuda) as applied to claim 49 above, and further in view of Kolze et al. US006285681B1 (Kolze).

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Re claim(s) 53

The modified invention of Petsko and Tsuda does not disclose Forward Error Correction (FEC). However, Kolze disclose FEC (figure 1 #16). It would have been obvious to one of ordinary skill in the art at the time of invention to add FEC to the aforementioned invention for the benefit of optimizing data transmission under various conditions of channel quality and interference based upon the Kolze disclosure (e.g., col./line: 1/35-40).

Allowable Subject Matter

11. Claims 44-48 are allowed.

Response to Arguments

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (571) 272-3024. The examiner can normally be reached on M-F, 7a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dcp



David C. Payne
Patent Examiner
AU 2633